



Mercedes-Benz

MB Sprinter

CBI / Ex. 4



New fuel efficient **CBI / Ex. 4** engine

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Diesel Specific Emission Reduction System – CBI / Ex. 4 catalyst

On the way to reach SULEV emission level, CBI / Ex. 4 catalyst is needed.

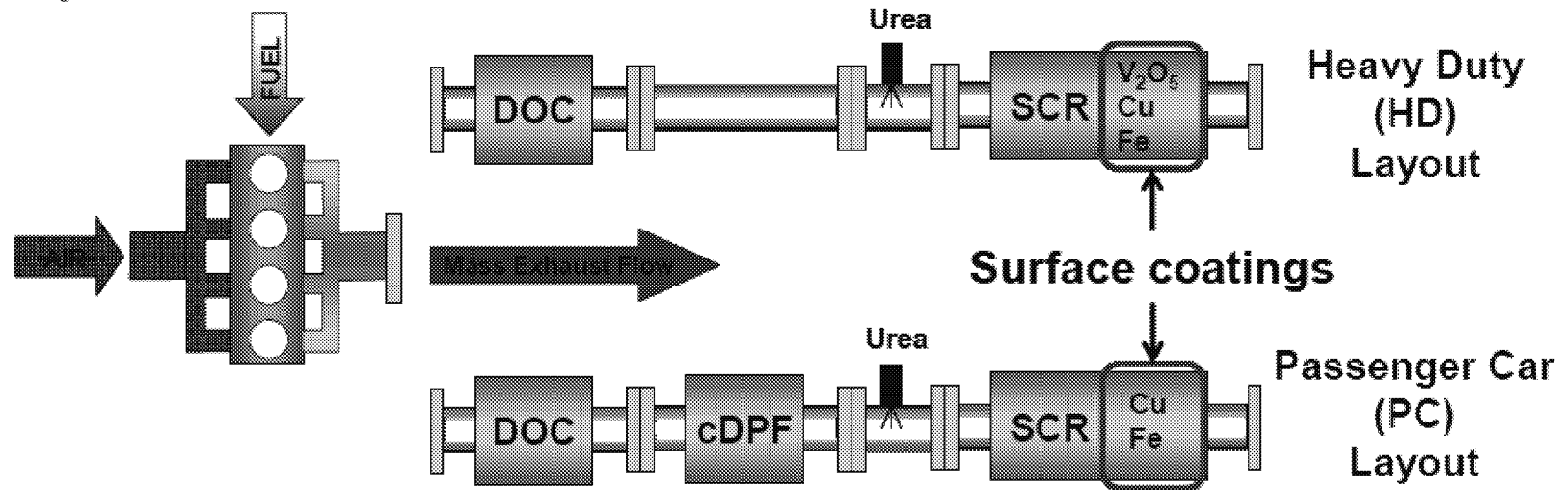
The following OEMS have already certified a CBI / Ex. 4 catalyst:

- GM
- Ford
- Cummins
- Volkswagen
- Audi

A CBI / Ex. 4 catalyst therefore is considered as state of the art and Mercedes Benz expects that no additional tests for emission certification are needed.

The concern regarding dioxin was addressed by 2 working groups with the result that no negative influence was found. See following pages.

- A large scale independent research project was performed
- Engine tests are done at the UAS Regensburg with high level industrial support by VDMA / VFI
- Project leader was UAS Regensburg
- sampling was planned by Eurofins GfA GmbH and done by UAS Regensburg after been trained by Eurofins GfA
- PCDD/F analysis was done by Eurofins GfA GmbH
- More than 100 analyzed samples from two different layouts,
- different surface coatings, different sampling locations and different temperatures in the exhaust system



A large scale project was performed to investigate possible PCDD/F-secondary emissions from different current and future diesel engine exhaust aftertreatment systems like selective catalytic reduction (SCR).

- All analyzed samples showed PCDD/F-results in the lowest pg/m³ level,
- All observed values are between 0.002 pg I-TEQ / m³ and 2.97 pg I-TEQ / m³ and well within the results from other studies,
- There are no significant differences between the LD-program and HD-Program
- Almost all results are in the range of the blanks and near the limits of quantification, this is at the “edge” of current available sampling and analysis technique
- Comparing the Vanadium-based catalysts as established catalysts at large scale power plants, waste incineration plants and similar with copper- and iron-based catalysts there are no significant differences in the PCDD/F-levels behind

The project shows no negative influence of upcoming new catalyst based on copper or iron. This technique is safe for daily use as diesel exhaust aftertreatment system.



Dioxin, Furan, PCB, and PAH Emissions from a Compression Ignition Engine Utilizing CuZ SCR

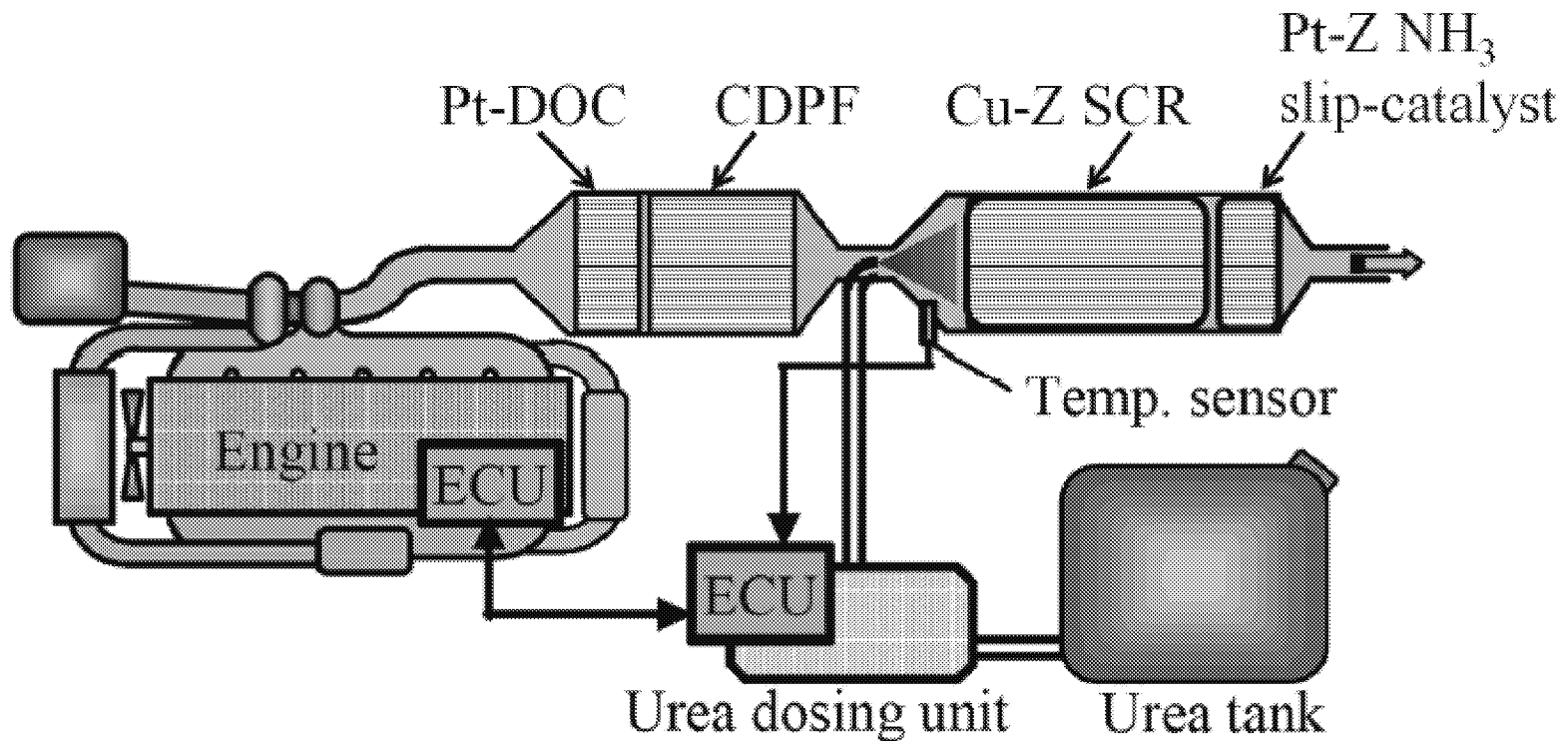
Christopher Laroo

US EPA

*Office of Transportation and Air Quality
Assessment and Standards Division*

*SAE 2010 World Congress
Detroit, MI
April 13, 2010*

- Engine: 2007 Cummins ISB 6.7.
- Multiple test configurations using two different urea SCR systems (Cu-zeolite and Fe-zeolite, mild aging).





- Results to date indicate that there is no significant risk of elevated PCDD/F emissions associated with the use of SCR.
- We plan to continue in-house testing for the

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